

October 7, 2013

**VIA ELECTRONIC FILING**

David Erickson  
President and Chief Executive Officer  
Alberta Electric System Operator  
2500, 330 - 5 Avenue SW  
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T2P 0L4

Re: *North American Electric Reliability Corporation*

Dear Mr. Erickson:

The North American Electric Reliability Corporation (“NERC”) hereby submits Notice of Filing of the North American Electric Reliability Corporation of BAL-004-WECC-02 and BAL-001-1. NERC requests, to the extent necessary, a waiver of any applicable filing requirements with respect to this filing.

NERC understands the AESO may adopt the proposed reliability standards subject to Alberta legislation, principally as established in the *Transmission Regulation* (“the T Reg.”). Briefly, it is NERC’s understanding that the T Reg. requires the following with regard to the adoption in Alberta of a NERC Reliability Standard:

1. The AESO must consult with those market participants that it considers are likely to be directly affected.
2. The AESO must forward the proposed reliability standards to the Alberta Utilities Commission for review, along with the AESO’s recommendation that the Commission approve or reject them.
3. The Commission must follow the recommendation of the AESO that the Commission approve or reject the proposed reliability standards unless an interested person satisfies the Commission that the AESO’s recommendation is “technically deficient” or “not in the public interest.”

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Further, NERC has been advised by the AESO that the AESO practice with respect to the adoption of a NERC Reliability Standard includes a review of the NERC Reliability Standard for applicability to Alberta legislation and electric industry practice. NERC has been advised that, while the objective is to adhere as closely as possible to the requirements of the NERC Reliability Standard, each NERC Reliability Standard approved in Alberta (called an “Alberta reliability standard”) generally varies from the similar and related NERC Reliability Standard.

NERC requests the AESO consider Proposed Reliability Standards BAL-004-WECC-02 and BAL-001-1 described in the attached filing for adoption in Alberta as an “Alberta reliability standard(s)”, subject to the required procedures and legislation of Alberta.

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Holly A. Hawkins

Holly A. Hawkins

*Assistant General Counsel for*

*North American Electric Reliability  
Corporation*

Enclosure

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**BEFORE THE  
ALBERTA ELECTRIC SYSTEM OPERATOR**

**NORTH AMERICAN ELECTRIC )  
RELIABILITY CORPORATION )**

**NOTICE OF FILING OF THE  
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
OF BAL-004-WECC-02 AND BAL-001-1**

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*Counsel for the North American Electric  
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October 7, 2013

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<b>Exhibit A</b>	Proposed Regional Reliability Standard BAL-004-WECC-02 — Automatic Time Error Correction
<b>Exhibit B</b>	Proposed Reliability Standard BAL-001-1 — Real Power Balancing Control Performance
<b>Exhibit C</b>	Implementation Plan
<b>Exhibit D</b>	Reliability Standards Criteria
<b>Exhibit E</b>	Mapping Document
<b>Exhibit F</b>	Issues and Directives – Order No. 723
<b>Exhibit G</b>	Technical Documents
<b>Exhibit H</b>	Violation Severity Level and Violation Risk Factor Guideline Analysis
<b>Exhibit I</b>	Summary of Development History and Record of Development
<b>Exhibit J</b>	Standard Drafting Team Roster

**BEFORE THE  
ALBERTA ELECTRIC SYSTEM OPERATOR**

**NORTH AMERICAN ELECTRIC** )  
**RELIABILITY CORPORATION** )

**NOTICE OF FILING OF THE  
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
OF BAL-004-WECC-02 AND BAL-001-1**

The North American Electric Reliability Corporation (“NERC”) hereby submits proposed regional Reliability Standard BAL-004-WECC-02 and proposed Reliability Standard BAL-001-1 (collectively, “Proposed Reliability Standards”), effective on the first day of the second quarter after regulatory approval. The Proposed Reliability Standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest. The Western Electricity Coordinating Council (“WECC”)<sup>1</sup> supports this filing.<sup>2</sup> NERC also provides notice of the associated implementation plan (**Exhibit C**), Violation Risk Factors (“VRFs”) and Violation Severity Levels (“VSLs”) (**Exhibits A, B, and H**), and the following new or revised definitions in the NERC Glossary: “Area Control Error” (“ACE”) and “Automatic Time Error Correction” (“ATEC”). ATEC is a newly proposed definition applicable within the Western Interconnection only. The proposed definition of ACE incorporates the use of ATEC and, once approved, will

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<sup>1</sup> As a Regional Entity, WECC oversees transmission system reliability in the Western Interconnection. The WECC region encompasses nearly 1.8 million square miles, including all or parts of the fourteen western United States, two Canadian provinces, and the northern portion of Baja California, Mexico.

<sup>2</sup> As the Regional Entity who developed proposed regional Reliability Standard BAL-004-WECC-02 and proposed changes to BAL-001-1, WECC joins and supports NERC’s petition filing.

retire the current NERC Glossary definition of ACE. Finally, NERC provides notice of the retirement of the following:

- Regional Reliability Standard BAL-004-WECC-1 – Automatic Time Error Correction (superseded by BAL-004-WECC-02);
- Reliability Standard BAL-001-0.1a– Real Power Balancing Control Performance and associated Appendix 2 interpretation (superseded by BAL-001-1); and
- Appendix 1 Interpretation of Requirement R3 in Reliability Standard BAL-003-0.1b – Frequency Response and Bias.

This filing presents the technical basis and purpose of the Proposed Reliability Standards, a summary of the development proceedings of NERC and WECC (**Exhibit J**), and a demonstration that the proposed Reliability Standard meets the reliability criteria (**Exhibits D and E**). The Proposed Reliability Standards were approved by the NERC Board of Trustees on December 19, 2012.

## **I. EXECUTIVE SUMMARY**

The purpose of proposed regional Reliability Standard BAL-004-WECC-02 — Automatic Time Error Correction is to maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection. The purpose of BAL-001-1 — Real Power Balancing Control Performance is to maintain interconnection steady-state frequency within defined limits by balancing power demand and supply in real-time.

In response to the Federal Energy Regulatory Commission (“FERC”) directives in Order No. 723, WECC modified regional Reliability Standard BAL-004-WECC-01. To effectively address FERC’s directives and improve the regional Reliability Standard, the standard drafting team elected to move the WECC ACE, which incorporates the ATEC equations to a regional

variance in the continent-wide Reliability Standard BAL-001-0.1a. For these reasons, these Proposed Reliability Standards – consisting of a regional Reliability Standard and a regional variance to a continent-wide Reliability Standard, are being submitted together.

The proposed Reliability Standards were approved by the NERC Board of Trustees on December 12, 2012. The effective date will be the first day of the second quarter after regulatory approval for the proposed changes.

## **II. NOTICES AND COMMUNICATIONS**

Notices and communications with respect to this filing may be addressed to the following:

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## **III. BACKGROUND**

### **A. Framework**

A regional difference generally takes one of two forms: (1) a regional variance may be included in a continent-wide Reliability Standard, which achieves the reliability objective of the continent-wide standard's requirement(s) in an alternate way than specified in a given Requirement in the continent-wide standard or (2) a separate regional Reliability Standard may

be developed, which adds one or more Requirements without altering any continent-wide Requirements that are applicable to entities in the region.<sup>3</sup>

## **B. History of WECC Development Project WECC-0068**

### *1. Time Error Correction*

As both NERC<sup>4</sup> and FERC<sup>5</sup> have previously noted, Time Error<sup>6</sup> occurs when a synchronous Interconnection operates at a frequency that is different from the Interconnection's Scheduled Frequency. Interconnections control to 60 Hz (60 cycles per second); however, the control is imperfect and over time results in the average frequency being either above 60 Hz or below 60 Hz. This discrepancy between actual frequency and Scheduled Frequency results from an imbalance between generation and interchange and load and losses, which also results in Inadvertent Interchange.<sup>7</sup> Time Error Correction<sup>8</sup> is the procedure Reliability Coordinators and Balancing Authorities follow to reduce Time Error and regulate the average frequency closer to 60 Hz. The Time Error Correction Reliability Standard, BAL-004-0,<sup>9</sup> sets forth the process that Reliability Coordinators and Balancing Authorities follow to offset their Scheduled Frequency to reliably correct for the accumulated Time Error. The efficiency of Time Error Corrections is

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<sup>3</sup> See NERC, *Whitepaper to Provide Guidance on Regional Standards and Variances*, May 17, 2012, available at <http://www.nerc.com/docs/sac/rsg/Whitepaper%20on%20Regional%20Standards%20and%20Variances%20final.pdf>

<sup>4</sup> NERC Nov. 15, 2012 Notice of Withdrawal of BAL-004-1.

<sup>5</sup> *Time Error Correction Reliability Standard*, 130 FERC ¶ 61,201 (2010).

<sup>6</sup> "Time Error" is defined as "[t]he difference between the Interconnection time measured at the Balancing Authority(ies) and the time specified by the National Institute of Standards and Technology. Time error is caused by the accumulation of Frequency Error over a given period." *NERC Glossary* at 64.

<sup>7</sup> Inadvertent Interchange occurs when unplanned energy transfers cross Balancing Authority boundaries, typically where a Balancing Authority experiences an operational problem that prevents its Net Actual Interchange of energy from matching its Net Scheduled Interchange with other Balancing Authorities within the Interconnection. "Inadvertent Interchange" is defined as the difference between the Balancing Authority's Net Actual Interchange and Net Scheduled Interchange. *NERC Glossary* at 35.

<sup>8</sup> "Time Error Correction" is defined as "[a]n offset to the Interconnection's scheduled frequency to return the Interconnection's Time Error to a predetermined value." *NERC Glossary* at 64.

<sup>9</sup> NERC withdrew the proposed BAL-004-1 Reliability Standard on November 15, 2012.



determined by the participation of all Balancing Authorities within the Interconnection. Coordination and oversight by all Balancing Authorities and Reliability Coordinators is necessary to ensure that Time Error Corrections are performed reliably.

2. *Regional Reliability Standard BAL-004-WECC-01*

On August 4, 2008, NERC submitted a filing of regional Reliability Standard BAL-004-WECC-01. The primary purpose of BAL-004-WECC-01 is to reduce the number of Time Error Corrections imposed on the Western Interconnection by requiring Balancing Authorities that operate synchronously to the Western Interconnection to automatically correct for their contribution to Time Error. Balancing Authorities determine their contribution to the Time Error in the Western Interconnection using the ATEC procedure in BAL-004-WECC-01. The BAL-004-WECC-01 regional Reliability Standard requires that each Balancing Authority calculate its Primary Inadvertent Interchange (“PII”)<sup>10</sup> from its hourly Inadvertent Interchange and use the resulting PII in its ACE equation to continuously correct for its portion of the Time Error automatically, as opposed to manually, as specified in the continent-wide Reliability Standard BAL-004-0.

In Order No. 723,<sup>11</sup> FERC approved BAL-004-WECC-01, finding that BAL-004-WECC-01 is more stringent than and covers matters not addressed by the related continent-wide NERC Reliability Standards BAL-004-0 and BAL-006-1. Specifically, the FERC stated that BAL-004-WECC-01 “provides for continuous capture of inadvertent interchange, and thereby (1) contributes to better operation of balancing authorities by operators, and (2) ensures that discrepancies between a balancing area’s net scheduled interchange and its net actual interchange

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<sup>10</sup> “Primary Inadvertent Interchange” is a term approved for use in the Western Interconnection and is defined as “[t]he component of area (n) inadvertent interchange caused by the regulating deficiencies of the area (n).” *NERC Glossary* at 75.

<sup>11</sup> *Western Electricity Coordinating Council Regional Reliability Standard Regarding Automatic Time Error Correction*, Order No. 723, 127 FERC ¶ 61,176 (2008), *order on reh’g*, 129 FERC ¶ 61,023 (2009).

are adjusted more quickly and accurately.”<sup>12</sup> In addition, pursuant to section 215(d)(5) of the FPA, FERC directed WECC to develop modifications to BAL-004-WECC-01 as summarized below.

*a) Requirement R1.2 of BAL-004-WECC-01*

Requirement R1.2 of BAL-004-WECC-01 provides in part:

Large accumulations of primary inadvertent point to an invalid implementation of ATEC, loose control, metering or accounting errors. A [Balancing Authority] in such a situation should identify the source of the error(s) and make the corrections, recalculate the primary inadvertent from the time of the error, adjust the accumulated primary inadvertent caused by the error(s), validate the implementation of ATEC, set  $L_{\max}$  equal to  $L_{10}$  and continue to operate with ATEC reducing the accumulation as system parameters allow.

In its NOPR, FERC noted that the phrases “large accumulation” and “in such a situation” are not defined and, while likely obvious in many circumstances, leaves to individual interpretation when a “large” amount of primary inadvertent has accumulated.<sup>13</sup> WECC suggested in its comments submitted in response to the NOPR to either define the terms within the regional Reliability Standard or clarify the language in the standard to better identify specific parameters that would trigger actions required under this standard. NERC agreed in its comments that further clarity of the identified phrases in Requirement R1.2 is appropriate. FERC adopted its NOPR proposal and directed WECC to develop revisions to the provision so that a Balancing Authority will know with specificity the circumstances that trigger the actions required by Requirement R1.2.<sup>14</sup>

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<sup>12</sup> Order No. 723 at P 25.

<sup>13</sup> NOPR at P 36.

<sup>14</sup> Order No. 723 at 30.

b) *Requirement R2*

Requirement R2 of BAL-004-WECC-01 provides that “[e]ach [Balancing Authority] while synchronously connected to the Western Interconnection will be allowed to have ATEC out of service for a maximum of 24 hours per calendar quarter, for reasons including maintenance and testing.” In Order No. 723, FERC directed WECC to develop a modification to the regional Reliability Standard consistent with WECC’s and NERC’s explanation in comments that the limit set forth in Requirement R2 of “24 hours per calendar quarter” is an accumulated total for the period, resulting from either a singular event or a cumulative time limit from a number of events.<sup>15</sup>

**C. NERC and WECC Reliability Standards Development Procedures**

The Proposed Reliability Standards were developed in an open and fair manner and in accordance with the NERC and WECC Reliability Standards development processes. NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its *Rules of Procedure* and the NERC Standard Processes Manual.<sup>16</sup> NERC’s proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing Reliability Standards and thus satisfies certain of the criteria for approving Reliability Standards.

As discussed in the *WECC Reliability Standards Development Procedure*,<sup>17</sup> WECC’s standards must be developed according to the following characteristic attributes:

- Open Access to all aspects of the Standard Development process;

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<sup>15</sup> Order No. 723 at 34.

<sup>16</sup> The NERC Rules of Procedure are available at <http://www.nerc.com/AboutNERC/Pages/Rules-ofProcedure.aspx>. The current NERC Standard Processes Manual is available at [http://www.nerc.com/files/Appendix\\_3A\\_StandardsProcessesManual\\_20120131.pdf](http://www.nerc.com/files/Appendix_3A_StandardsProcessesManual_20120131.pdf).

<sup>17</sup> The *WECC Reliability Standards Development Procedure* is available at <http://www.wecc.biz/library/WECC%20Documents/Business%20and%20Governance%20Documents/WECC%20Reliability%20Standards%20Development%20Procedures.pdf>.

- Drafting by Subject Matter Experts that accept and respond to all public input; and
- Formal approval involving response to input and final vote by affected entities and WECC's Board of Directors.

Proposed WECC regional Reliability Standards are subject to approval by NERC and the applicable governmental authorities before becoming mandatory and enforceable. As demonstrated herein, the proposed WECC regional Reliability Standard and the regional variance were developed in an open, transparent, and inclusive manner. The Proposed Reliability Standards were widely supported by the WECC ballot pool, approved by the WECC Standards Committee, and approved by both the WECC Board of Directors and NERC.

#### **IV. JUSTIFICATION**

This section summarizes the proposed regional Reliability Standard BAL-004-WECC-02 and the regional variance in proposed Reliability Standard BAL-001-1. It also presents the technical basis and content of the Proposed Reliability Standards. As discussed below and in the discussion of the reliability standards criteria in **Exhibit D**, the Proposed Reliability Standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest.

In addition, the proposed WECC regional variance in BAL-001-1 achieves the reliability objective of Requirement R1 of the continent-wide BAL-001 Reliability Standard in an alternate way for the Western Interconnection than specified. Below are a Requirement-by-Requirement explanation of the Proposed Reliability Standards and a summary of the FERC directives addressed. A summary of the proposed retirements that accompany the approval of the proposed Reliability Standards is also provided.

##### **A. Proposed Regional Reliability Standard BAL-004-WECC-02**

WECC has revised BAL-004-WECC-01 to comply with directives from Order No. 723, make clarifications to BAL-004-WECC-01, and move the ATEC equations from Requirement

R1 to a WECC regional variance in BAL-001-0.1. The purpose of proposed BAL-004-WECC-02 is to maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection. Proposed BAL-004-WECC-02 applies to Balancing Authorities that operate synchronously in the Western Interconnection. It continues to meet the purpose of the current BAL-004-WECC-01 regional Reliability Standard and remains more stringent than the continent-wide Reliability Standard BAL-004-0.<sup>18</sup> BAL-004-WECC-02 contains eight Requirements.

**Requirement R1** requires each Balancing Authority that operates synchronously to the Western Interconnection to continuously operate utilizing ATEC in its Automatic Generation Control system. In response to the FERC directive in Order No. 723 to revise Requirement 1.2 of BAL-004-WECC-01, the term “large accumulation” is eliminated and replaced in **Requirement R1** with a quantifiable maximum limit for each Balancing Authority to meet by the end of each month. For load-serving Balancing Authorities, Primary Inadvertent Interchange is “limited to 150% of the previous calendar year’s integrated hourly Peak Demand.”<sup>19</sup> For generation only Balancing Authorities, Primary Inadvertent Interchange is limited to “150% of the previous calendar year’s integrated hourly peak generation.”<sup>20</sup> This will provide the specificity FERC notes the Balancing Authority should have to trigger its responsibilities under the Requirement.

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<sup>18</sup> BAL-004-WECC-02 continues to provide for “continuous capture of inadvertent interchange, and thereby (1) contributes to better operation of balancing authorities by operators, and (2) ensures that discrepancies between a balancing area’s net scheduled interchange and its net actual interchange are adjusted more quickly and accurately.” Order No. 723 at P 25 (finding that BAL-004-WECC-01 is more stringent than the continent-wide Reliability Standard).

<sup>19</sup> BAL-004-WECC-02, Requirement R1, Part 1.1.

<sup>20</sup> BAL-004-WECC-02, Requirement R1, Part 1.2.

If a Balancing Authority discovers an error in the calculation of the hourly Primary Inadvertent Interchange, under **Requirement R2**, the Balancing Authority is required to recalculate the value of the hourly Primary Inadvertent Interchange and adjust the accumulated Primary Inadvertent Interchange from the time of the error within 90 days. The standard drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate the hourly Primary Inadvertent Interchange and the accumulated Primary Inadvertent Interchange, since recalculation of hourly Primary Inadvertent Interchange and the accumulated Primary Inadvertent Interchange is not a real-time operations reliability issue.

**Requirement R3** requires each Balancing Authority to keep its Automatic Time Error Correction in service, with an allowable exception period of less than or equal to an accumulated twenty-four hours per calendar quarter for ATEC to be out of service. This carries forward the prior Requirement R2 of BAL-004-WECC-01 and deletes the portion of the requirement to notify all other Balancing Authorities of its operating mode if the operating mode differs from ATEC. Because use of ATEC is required under BAL-004-WECC-02, this notification aspect is no longer necessary. Requirement R3 also clarifies, in response to Order No. 723, that the exception period for having ATEC out of service is an *accumulated* total for the period of 24 hours per calendar quarter. The restated Requirement also recognizes that extremely short interruptions in ATEC need not be communicated to the Western Interconnection. For example, computer maintenance processes could result in momentary interruptions (*e.g.*, system upgrades) that do not require notifying neighboring Balancing Authorities.

**Requirements R4 and R6** require the calculation and recalculation respectively of Primary Inadvertent Interchange (both hourly and accumulated) and Automatic Time Error

Correction.<sup>21</sup> Requirement R4, parts 4.1, 4.2 and 4.3 specifically call for computation of hourly Primary Inadvertent Interchange, accumulated Primary Inadvertent Interchange, and Automatic Time Error Correction. Requirement R6 also calls for recalculation of hourly Primary Inadvertent Interchange and accumulated Primary Inadvertent Interchange “whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta$ TE.”<sup>22</sup> These requirements provide added specificity and time constraint to the previous requirements in BAL-004-WECC-01. Requirement R4.1 from BAL-004-WECC-01 has been replaced with the  $\Delta$ TE term in BAL-001-1, Requirement E.B.1. Requirement R4.2 from BAL-004-WECC-01 has been replaced by **Requirements R2 and R6** in BAL-004-WECC-02.

**Requirement R5** continues to allow each Balancing Authority to change its Automatic Generation Control operating mode to correspond to current operating conditions. This is currently permitted under Requirement R3 of BAL-004-WECC-01. Requirement R3 also required that the ACE used for NERC reports must be the same ACE as the AGC operating mode in use. Proposed Requirement R5 removes the reference to the NERC report because such a requirement is not necessary with the adoption of a WECC regional variance to BAL-001-0.1a.<sup>23</sup>

**Requirement R7** replaces Requirement R4.3 from BAL-004-WECC-01. Requirement R7 requires the Balancing Authority to make the same adjustment to the accumulated Primary Inadvertent Interchange as it did for any month-end meter reading adjustments to Inadvertent Interchange. Requiring the same adjustment was chosen for simplicity to bilaterally assign

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<sup>21</sup> Requirement R4 from BAL-004-WECC-01 has been replaced by Requirement R4, parts 4.1, 4.2 and 4.3, and Requirement R6 in proposed BAL-004-WECC-02

<sup>22</sup>  $\Delta$ TE is the hourly change in system Time Error as distributed by the Interconnection Time Monitor.

<sup>23</sup> There was some confusion in industry regarding which ACE should be used for NERC reports since the language in Requirement R3 seemed to conflict with the NERC response in comments to the NOPR on BAL-004-WECC-01 that entities may use ATEC ACE for control but should use raw ACE for reporting.

Primary Inadvertent Interchange to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

**Requirement R8** has been added to BAL-004-WECC-02 to prevent stranded Secondary Inadvertent Interchange. It requires payback of Inadvertent Interchange using ATEC rather than bilateral and unilateral payback.

Requirement R4.4 from BAL-004-WECC-01 has been deleted because Requirement R4.1 mandates the use of “change in Time Error distributed by the Interconnection Time Monitor.” This eliminates the need for Balancing Authorities to maintain a separate Time Error which would require daily synchronizing with the Interconnection Time Monitor and renders Requirement R4.1 redundant.

#### **B. Proposed Reliability Standard BAL-001-1**

WECC has also developed a proposed alternative methodology for calculating ACE in the Western Interconnection. Specifically, WECC has moved the ATEC equations previously located in Requirement R1 of regional Reliability Standard BAL-004-WECC-01 to a WECC-specific regional variance in proposed Reliability Standard BAL-001-1.<sup>24</sup> This regional variance is included in proposed Reliability Standard BAL-001-1 in section E, part B. The proposed regional variance requires Balancing Authorities in WECC to use the ATEC ACE for control *and* Control Performance Standard reporting. This approach has the same reliability objective as BAL-001-0.1a with the enhanced benefit of ensuring that Time Error Corrections and Primary Inadvertent Interchange payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection. Using the ATEC ACE equation for Control Performance Standard reporting is appropriate in the Western Interconnection because it is a

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<sup>24</sup> The NERC Board of Trustees recently approved BAL-001-2 which will supersede the proposed BAL-001-1 Reliability Standard.



more accurate measure of how well a Balancing Authority is controlling to its control performance target. Balancing Authorities in the Western Interconnection believe that using the continent-wide ACE for Control Performance Standard reporting while using ATEC ACE for controlling is not a true measure of a Balancing Authority's control performance and is therefore not an accurate representation of their contribution to Interconnection reliability.

Under the current ACE equation, a Balancing Authority controls its frequency and Interchange to a target point of zero. By contrast, the proposed ATEC ACE allows the control to stay within a predefined range adjusted by the ATEC. WECC produced a technical justification paper titled *Consolidation of NERC and Control ACEs – Using the Same ACE for Control and NERC Reporting*, included as **Exhibit G**, to detail the issues related to use of two different ACE equations. It provides background and a discussion of the key technical issues involved in developing the changes. The document also provides historical data showing the number of manual Time Error Corrections and shows comparative frequency error profiles.

Establishing a WECC regional variance in proposed BAL-001-1 provides the following enhancements within the BAL-001 Reliability Standard for the Western Interconnection:

- the definition of ATEC ACE will be re-located to BAL-001 from BAL-004-WECC-01, locating all of the definitions of ACE for all Interconnections in a single Reliability Standard;
- the equations for ATEC ACE will use terminology and variables that are common to the other Interconnections;
- definition of ACE and “control” ACE will be unified in the Western Interconnection; and
- consideration of exceptional circumstances governing multiple ACEs will be eliminated.

Proposed BAL-001-1 will retire the Appendix 2 interpretation to Reliability Standard BAL-001-0.1a if approved. The Appendix 2 interpretation request asked whether the WECC

ATEC procedure violates Requirement R1 of BAL-001-0. The approved interpretation states that as long as Balancing Authorities use raw (unadjusted for WECC ATEC) ACE for Control Performance Standard reporting purposes under BAL-001, the use of ATEC for control is not in violation of BAL-001 Requirement R1. This interpretation is no longer necessary since the same ACE will be used in the Western Interconnection for control and Control Performance Standard reporting purposes.

Proposed BAL-001-1 will also permit the retirement of the Appendix 1 Interpretation of Requirement R3 in Reliability Standard BAL-003-0.1b – Frequency Response and Bias.<sup>25</sup> By creating a regional variance that replaces Requirement R1 in WECC, these interpretations are no longer needed.

### **C. Definitions**

NERC and WECC also propose two definitions for approval. First, a revision to the definition for “Area Control Error” is proposed. The drafting team revised the definition for ACE to align with the NERC definition for ACE while at the same time recognizing the concept of ATEC used in the Western Interconnection. The revised definition includes a provision for ATEC if operating in the ATEC mode. The revised definition for ACE will replace the current continent-wide definition. To make clear that the ATEC portions of the definition only apply to WECC, the revised definition states that “ATEC is only applicable to Balancing Authorities in the Western Interconnection.” The WECC regional definition of ACE will be retired. Second, “Automatic Time Error Correction” is a newly proposed definition applicable within the Western Interconnection intended to more accurately define the term.

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<sup>25</sup> On July 18, 2013, FERC issued a NOPR proposing to approve Reliability Standard BAL-003-1. *See Frequency Response and Frequency Bias Setting Reliability Standard*, NOPR, 144 FERC ¶ 61,057 (2013). The proposed BAL-003-1 Reliability Standard would retire the Appendix 2 interpretation if approved by FERC in a Final Rule. If FERC approves proposed BAL-001-1 prior to issuing a Final Rule approving proposed BAL-003-1, NERC and WECC will request that the Appendix 2 interpretation be retired.

**D. Enforceability of Proposed Reliability Standards BAL-004-WECC-02 and BAL-001-1**

The Proposed Reliability Standards contain Measures that support each Requirement. These Measures help provide clarity regarding how the Requirements will be enforced, and ensure that the Requirements will be enforced in a clear, consistent, and non-preferential manner and without prejudice to any party. The Proposed Reliability Standards also contain both VRFs and VSLs assigned to each Requirement. The VRFs and VSLs were developed and reviewed for consistency with NERC and FERC guidelines. Analysis of the assigned VRFs and VSLs for BAL-004-WECC-02 is included in **Exhibit H**.

For proposed BAL-001-1, the standard drafting team is proposing the same VSLs for Requirement E.B.1 of the regional variance as those in Requirement R1 of BAL-001-0.1a because both Requirements measure how well a Balancing Authority is meeting its control performance target. Requirements E.B.2 and E.B.3 are considered to be “Pass/Fail” Requirements and pursuant to the NERC Violation Severity Guidelines, these requirements were assigned a severity level of “severe.” Using the definitions set forth in the *Sanction Guidelines of the North American Electricity Reliability Corporation*, the standard drafting team proposes the VRFs for Requirements E.B.1, E.B.2, and E.B.3 as “Medium”. This reflects the determination by the standard drafting team, that if any one of the Requirements were violated, it could directly affect the electrical state or the capability of the Bulk Electric System, or the ability to effectively monitor and control the Bulk Electric System. However, if any one of the Requirements were violated, it is unlikely to lead to Bulk Electric System instability, separation, or cascading failures. No changes to the VRF’s or VSL’s were proposed for the existing portions of Reliability Standard BAL-001.

Respectfully submitted,

*/s/ William H. Edwards*

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## **EXHIBITS A – C; E – J**

(Available on the NERC Website at

[http://www.nerc.com/fileUploads/File/Filings/Attachments\\_BAL-004-WECC-02\\_filing](http://www.nerc.com/fileUploads/File/Filings/Attachments_BAL-004-WECC-02_filing))

## EXHIBIT D

### Reliability Standards Criteria

The discussion below identifies Reliability Standards criteria and explains how the Proposed Reliability Standards have met or exceeded the criteria:

- 1. Proposed Reliability Standards must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve that goal.**

The purpose of proposed Reliability Standard BAL-004-WECC-02 — Automatic Time Error Correction is to maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection. The purpose of the proposed regional variance in Reliability Standard BAL-001-1 — Real Power Balancing Control Performance is to maintain interconnection steady-state frequency within defined limits by balancing power demand and supply in real-time. Implementation of the Proposed Reliability Standards will achieve a number of reliability goals: (1) consolidating two ACE equations improves reliability by enhancing control; (2) implementation creates a maximum (absolute value) ceiling for Accumulated Primary Inadvertent Interchange; (3) implementation maintains or improves the interconnection frequency error profile; and (4) implementation reduces the number and duration of manual time error corrections.

The proposed regional variance in BAL-001-1 is an alternative methodology for calculating ACE; specifically, it would replace the NERC raw ACE equation with the ATEC ACE thereby requiring WECC Balancing Authorities to use the ATEC ACE for both control and

Control Performance Standard reporting. This approach has the same reliability objective as BAL-001-0.1a with the enhanced benefit of ensuring that Time Error Corrections and Primary Inadvertent Interchange payback are effectively conducted in a manner that does not adversely affect the reliability of the Western Interconnection.

Use of the ATEC component in the ACE equation has been effective in mitigating two main issues in the Western Interconnection. First, it has been used to reduce the number of hours of manual Time Error Corrections, or the amount of manual adjustments of timing errors that accumulate on clocks, which make certain interconnection scheduled frequency deviations. Second, since Time Error is directly related to Inadvertent Interchange, the procedure has been used to reduce accumulated Inadvertent Interchange, or the difference between the actual and scheduled interchange.

The ATEC procedure requires Balancing Authorities in the Western Interconnection to determine their contribution to the Interconnection Time Error. The Balancing Authority does this by calculating its Primary Inadvertent Interchange. BAL-001-1 Requirement E.B.1 requires that each Balancing Authority calculate its  $PII_{accum}$  and  $I_{ATEC}$  from its hourly Inadvertent Interchange. When the resulting  $I_{ATEC}$  is entered into Balancing Authority's ACE equation,  $I_{ATEC}$  continuously corrects for its portion of the time error automatically, as opposed to manually. Although the maximum payback is bounded between limits, the continuous correction enables equitable payback of Primary Inadvertent Interchange.

**2. Proposed Reliability Standards must be applicable only to users, owners and operators of the bulk power system, and must be clear and unambiguous as to what is required and who is required to comply.**

Proposed BAL-004-WECC-02 and BAL-001-1 are clear and unambiguous as to what is required and who is required to comply. The proposed regional Reliability Standard and the

variance to the continent-wide standard are only applicable to Balancing Authorities in the Western Interconnection. These entities are users, owners, or operators of the Bulk-Power System. The assigned tasks are detailed and largely follow a numeric equation thereby limiting ambiguity.

**3. A proposed Reliability Standard must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.**

Both proposed BAL-001-1 and BAL-004-WECC-02 include a Table of Compliance Elements specific to the proposed additions and changes. These tables include applicable Time Horizons, Violation Risk Factors, and Violation Severity Levels for each Requirement, varying from lower to severe, based on the magnitude of each specified violation. The VRFs and VSLs for proposed BAL-004-WECC-02 and BAL-001-1 comport with NERC and Federal Energy Regulatory Commission (“FERC”) guidelines related to their assignment. The assignment of the severity level for each VSL is consistent with the corresponding Requirement and the VSLs should ensure uniformity and consistency in the determination of penalties. The VSLs do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. For these reasons, the proposed Reliability Standard includes clear and understandable consequences.

Proposed BAL-004-WECC-02 and BAL-001-1 also include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation. The ranges of penalties for violations will be based on the applicable VRF and VSL in accordance with the sanctions table and the supporting penalty determination process described in the NERC Sanction Guidelines, Appendix 4B to the NERC *Rules of Procedure*. An explanation of the



VRFs and VSLs for proposed BAL-004-WECC-02 is provided in **Exhibit I**. An explanation of the VRFs and VSLs for proposed BAL-001-1 is included in section IV.D of the petition.

**4. A proposed Reliability Standard must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner.**

Proposed BAL-001-1 and BAL-004-WECC-02 identify clear and objective criterion or measures for compliance, so that it can be enforced in a consistent non-preferential manner. For each Requirement specified in proposed BAL-001-1 and BAL-004-WECC-02 proposed for addition or alteration, there is a corresponding objective Measure. These Measures require, but are not limited to, possession of specified documentation containing specified content evidencing the achievement of the task assigned in the corresponding Requirement.

**5. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently — but do not necessarily have to reflect “best practices” without regard to implementation cost or historical regional infrastructure design.**

The proposed regional Reliability Standard and the regional variance achieve its reliability goal effectively and efficiently. The standard drafting team made clarifying changes to respond to FERC’s directives, made general improvements to the language in the BAL-004-WECC-01 regional Reliability Standard, and the proposed BAL-001-1 and BAL-004-WECC-02 Reliability Standards continue to utilize the same ATEC ACE procedures used in the Western Interconnection under BAL-004-WECC-01.

- 6. Proposed Reliability Standards cannot be “lowest common denominator,” *i.e.*, cannot reflect a compromise that does not adequately protect Bulk-Power System reliability. Proposed Reliability Standards can consider costs to implement for smaller entities, but not at consequences of less than excellence in operating system reliability.**

Proposed BAL-001-1 and BAL-004-WECC-02 do not reflect a compromise that does not adequately protect Bulk-Power System reliability. As noted above, the alternative approach continues to meet the reliability goal in BAL-001-0.1a and maintains the current practice in WECC of using ATEC. The proposed regional variance in BAL-001-1 requires an alternative methodology that has been shown to result in reduced frequency error profiles and in reduced inadvertent interchange when compared with the results of the methodology required by BAL-001-0.1a in the continent-wide portion of the Reliability Standard.

The standard drafting team determined that the regional variance should result in relatively the same aggregate costs to applicable entities. While exact costs to implement the changes have not been calculated, the standard drafting team estimated the costs to be relatively low due to the fact that ATEC ACE is already being calculated and used in operation control, and that Control Performance Standard reporting is already done. The only difference will be to collect and report the differing Control Performance Standard quantities.

- 7. Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single Reliability Standard while not favoring one geographic area or regional model. It should take into account regional variations in the organization and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard.**

Proposed BAL-001-1 and BAL-004-WECC-02 are designed on a regional basis and will only apply to the Western Interconnection.

**8. Proposed Reliability Standards should cause no undue negative effect on competition or restriction of the grid beyond any restriction necessary for reliability.**

The proposed Reliability Standards will not cause undue negative effects on competition or restriction of the grid. Because the proposed Reliability Standards will be applied equally across the Western Interconnection, BAL-004-WECC-02 and the regional variance added to BAL-001-1 will not negatively affect competition.

Some entities submitted comments that setting the control limits too broadly may entice some entities to take advantage of economic and system conditions and push control obligations onto neighboring Balancing Authorities in the Interconnection. The standard drafting team considered the position concluding that the operating limits proposed were reasonable taking into consideration the size and the current operating practices of Balancing Authorities. As noted in the technical documents in **Exhibit G**, controlling with an ACE equation containing the ATEC term reduces the average frequency deviation error. The proposed ATEC and Primary Inadvertent Interchange limits are within the design parameters for control.

**9. The implementation time for the proposed Reliability Standard is reasonable.**

The implementation time for the Proposed Reliability Standards is reasonable. The proposed effective dates are explained in the proposed implementation plan, attached as **Exhibit C**. The Proposed Reliability Standards will become effective on the first day of the second quarter after regulatory approval. Since entities in the Western Interconnection are already controlling their Balancing Authority Areas with the ATEC ACE equation the impact of transition to controlling and reporting using the ATEC ACE is expected to be minimal. Additionally, it is anticipated

that it will take a very small amount of time to implement the limits to a Balancing Authority's accumulated Primary Inadvertent Interchange.

**10. The Reliability Standard was developed in an open and fair manner and in accordance with the Reliability Standard development process.**

The Proposed Reliability Standards were developed in accordance with NERC's and WECC's ANSI- accredited processes for developing and approving Reliability Standards. A summary of the Reliability Standard Development proceedings is included in **Exhibit I** along with the complete record of development.

These processes included, among other things, multiple comment periods, pre-ballot review periods, and balloting periods. Additionally, all drafting team meetings were properly noticed and open to the public. The initial and recirculation ballots both achieved a quorum and exceeded the required ballot pool approval levels.

**11. NERC must explain any balancing of vital public interests in the development of proposed Reliability Standards.**

NERC and WECC have not identified competing vital public interests with respect to the request for approval of the proposed Reliability Standards. In addition, no comments were received during the standard development process that indicated the proposed Reliability Standards conflict with other vital public interests.

**12. Proposed Reliability Standards must consider any other appropriate factors.**

No other factors relevant to whether the proposed Reliability Standards are just and reasonable were identified.